

**Listing of Claims:**

1. (currently amended) A modular mezzanine connector system, comprising:
  - (a) a plug assembly, comprising:
    - (a<sub>1</sub>) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;
    - (a<sub>2</sub>) a plug contact assembly mounted within the plug assembly comprising a plurality of plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base; [[and]]
    - (a<sub>3</sub>) a plug cover coupled to the first common base; and
    - (a<sub>4</sub>) a spacer mounted between the plug cover and the first common base; and
  - (b) a receptacle assembly that mates with the plug assembly, comprising:
    - (b<sub>1</sub>) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base and wherein the first common base and the second common base are substantially identical and interchangeable;
    - (b<sub>2</sub>) a receptacle contact assembly mounted within the receptacle assembly and comprising a plurality of receptacle contacts, each receptacle contact comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base; and
    - (b<sub>3</sub>) a receptacle cover that is coupled to the second common base and that mates with the plug cover.

2. (canceled)

3. (original) The modular mezzanine connector system of claim 1, wherein the receptacle assembly further comprises a spacer mounted between the receptacle cover and the second common base.

4. (original) The modular mezzanine connector system of claim 1, wherein the plug assembly further comprises a spacer mounted between the plug cover and the first common base and the receptacle assembly further comprises a spacer mounted between the receptacle cover and the second common base.

5. (original) The modular mezzanine connector system of claim 1, wherein the pockets of the first and the second common base are disposed in an interstitial diamond configuration.

6. (original) The modular mezzanine connector system of claim 1, wherein the pockets of the first and the second common base are disposed in an interstitial diamond configuration and the first and the second common base further comprise a recess disposed above each of the pockets through which a contact can be inserted.

7. (original) The modular mezzanine connector system of claim 1, wherein the plurality of plug and receptacle contacts are disposed in an in-line stripline configuration.

8. (previously presented) The modular mezzanine connector system of claim 1, wherein the plurality of plug contacts and receptacle contacts comprise signal contacts and are disposed in a row each contact oriented perpendicular to a ground plane.

9. (original) The modular mezzanine connector system of claim 1, further comprising an adaptor which is mated to the plug cover and the receptacle cover.

10. (currently amended) A method of making a modular mezzanine connector system to a desired stack height, comprising:

inserting a plurality of plug contacts into a first common base;

coupling a plug cover to the first common base and if needed to meet the desired stack height attaching a spacer between the plug base and the plug cover;

inserting a plurality of receptacle contacts into a second common base  
interchangeable with the first common base, the first and the second common bases each comprising a plurality of pockets that are disposed in an interstitial diamond configuration;

coupling a receptacle cover to the second common base; and

coupling the plug cover to the receptacle cover and thereby placing the plurality of plug contacts into electrical communication with the plurality of receptacle contacts.

11. (original) The method of claim 10, wherein each of the fusible elements comprise a solder ball.

12. (original) The method of claim 10, wherein inserting the plurality of plug contacts further comprises inserting the plurality of plug contacts in an in-line stripline configuration and wherein inserting the plurality of receptacle contacts further comprises inserting the receptacle contacts in an in-line stripline configuration.

13. (previously presented) The method of claim 10, wherein inserting the plurality of plug contacts further comprises inserting the plurality of plug contacts in a row with each contact oriented perpendicular to a ground plane and wherein inserting the plurality of receptacle contacts further comprises inserting the receptacle contacts in a row perpendicular to a ground plane.

14. (canceled)

15. (original) The method of claim 10, wherein coupling the plug cover to the first common base comprises inserting a plurality of tabs extending from the first common base into a plurality of channels in the plug cover.

16. (original) The method of claim 10, wherein coupling the receptacle cover to the second common base comprises inserting a plurality of tabs extending from the second common base into a plurality of channels in the receptacle cover.

17. (original) The method of claim 10, wherein coupling the plug cover to the receptacle cover comprises inserting the receptacle cover into an interior of the plug cover in an interference fit.

18. (original) The method of claim 10, wherein coupling the plug cover to the receptacle cover comprises inserting the plurality of plug contacts through slots in the receptacle cover and into contact with a corresponding receptacle contact.

19. (original) A modular mezzanine connector system, comprising:  
a plug assembly and a receptacle assembly that mates with the plug assembly,  
the plug assembly and the receptacle assembly each comprising a base which comprises  
a plurality of recesses;  
a plurality of diamond pockets disposed in an interstitial diamond  
configuration and there being a pocket beneath each recess so that a contact can extend  
through one of the recesses and into one of the pockets;  
the plurality of recesses being substantially rectangular in shape so that a  
contact extending through the recess and into the diamond pocket can receive a fusible  
element around a periphery of a portion of the contact extending into the pocket.

20. (original) The modular mezzanine connector system of claim 19, further  
comprising a plug cover coupled to the base of the plug assembly and a receptacle cover  
coupled to the base of the receptacle assembly.

21. (original) The modular mezzanine connector system of claim 19, wherein the plug assembly further comprises a plurality of plug contacts disposed in an in-line stripline configuration and the receptacle assembly further comprises a plurality of receptacle contacts disposed in an in-line stripline configuration.

22. (previously presented) The modular mezzanine connector system of claim 19, wherein the plug assembly further comprises a plurality of plug contacts disposed in a row with each contact oriented perpendicular to a ground plane and the receptacle assembly further comprises a plurality of receptacle contacts disposed in a row parallel to a ground plane.

23. (previously presented) The modular mezzanine connector system of claim 1, wherein the plurality of plug contacts and receptacle contacts comprise rows of signal and ground contacts disposed within a pattern in each pattern.

24. (previously presented) The modular mezzanine connector system of claim 23, wherein each plug ground contact comprises a first lateral side and a second lateral side and wherein the receptacle ground contacts within a row alternate mating with the first lateral side and the second lateral side of a ground plug contact.

25. (currently amended) The modular mezzanine style connector of claim 1, wherein the receptacle contact assembly further comprises a support member and the receptacle cover further comprises a member that runs along a midplane through the

receptacle cover, the ~~receptacle~~ member of the receptacle cover having a groove so that the support member is inserted into the groove[[s]] in order to center align the receptacle contact assembly.

26. (previously presented) The modular mezzanine connector system of claim 1, wherein the receptacle contact assembly comprises at least one row of individual contacts that are disposed in a ground, signal, signal, ground pattern, and wherein the plug contact assembly comprises at least one row of individual contacts disposed in a ground, signal, ground pattern, and wherein each adjacent two receptacle signal contacts mate with one plug signal contact beam.

27. (previously presented) The method of claim 10, wherein coupling the plug cover to the receptacle cover and thereby placing the plurality of plug contacts into electrical communication with the plurality of receptacle contacts comprises mating each ground receptacle contact in an alternating pattern with each plug ground contact such that every other receptacle ground contact within a row of receptacle contacts mates with a first lateral side of a plug ground contact and the other receptacle contacts with the row of receptacle contacts mate with a second lateral side of a plug ground contact.

28. (previously presented) The method of claim 10, further comprising inserting a support member of the receptacle contact assembly into a groove of a member that extends along a midplane of the receptacle cover to thereby center align the receptacle contacts.

29. (previously presented) The modular mezzanine style connector of claim 19, wherein the receptacle assembly further comprises a receptacle cover having a member that extends along a midplane of the receptacle assembly and that has a plurality of grooves that receive a support member of a contact assembly in order to center align each contact assembly.

30. (previously presented) The modular mezzanine style connector of claim 19, wherein the receptacle assembly further comprises a receptacle contact assembly comprising at least one row of individual contacts that are disposed in a ground, signal, signal, ground pattern, and wherein the plug assembly further comprises a plug contact assembly comprising at least one row of individual contacts disposed in a ground, signal, ground pattern, and wherein each adjacent two receptacle signal contacts mate with one plug signal contact.

31. (currently amended) An electrical connector, comprising:  
a plurality of individual contacts comprising ground and signal contacts;  
a base comprising a plurality of diamond shaped pockets, each pocket comprising a recess through which a portion of one of the contacts can extend into a pocket such that there is gap around the entire periphery of the contact portion;  
a fusible element being disposed in the gap around each contact portion; and  
a cover coupled to the base.



32. (currently amended) The electrical connector of claim 31, wherein the recess comprises a rectangle that is oriented such that each corner of the diamond shaped pocket is disposed along a line that bisects one of the sides of the rectangular recess.

33. (currently amended) An electrical connector system, comprising:

(a) a plug assembly, comprising:

(a1) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;

(a2) a plug contact assembly mounted within the plug assembly comprising a plurality of individual ground and signal plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base;

(a3) a plug cover coupled to the first common base;

(b) a receptacle assembly that mates with the plug assembly, comprising:

(b1) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base and wherein the first common base and the second common base are substantially identical and interchangeable;

(b2) a receptacle contact assembly mounted within the receptacle assembly comprising a plurality of individual ground and signal receptacle contacts, each receptacle contact comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base, the individual ground and signal receptacle contacts being disposed in rows with each row having contact beams disposed in a ground, signal, signal, ground pattern, each receptacle signal contact mating one of the individual plug signal

contacts and each receptacle ground contact mating one of the individual plug ground contacts;

(b3) a receptacle cover that is coupled to the second common base and that mates with the plug cover.

34. (canceled)

35. (new) A modular mezzanine connector system, comprising:

(a) a plug assembly, comprising:

(a<sub>1</sub>) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;

(a<sub>2</sub>) a plug contact assembly mounted within the plug assembly comprising a plurality of plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base; and

(a<sub>3</sub>) a plug cover coupled to the first common base; and

(b) a receptacle assembly that mates with the plug assembly, comprising:

(b<sub>1</sub>) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base and wherein the first common base and the second common base are substantially identical and interchangeable;

(b<sub>2</sub>) a receptacle contact assembly mounted within the receptacle assembly and comprising a plurality of receptacle contacts, each receptacle contact

comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base;

(b<sub>3</sub>) a receptacle cover that is coupled to the second common base and that mates with the plug cover; and

(b<sub>4</sub>) a spacer mounted between the receptacle cover and the second common base.

36. (new) A modular mezzanine connector system, comprising:

(a) a plug assembly, comprising:

(a<sub>1</sub>) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;

(a<sub>2</sub>) a plug contact assembly mounted within the plug assembly comprising a plurality of plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base;

(a<sub>3</sub>) a plug cover coupled to the first common base; and

(a<sub>4</sub>) a spacer mounted between the plug cover and the first common base; and

(b) a receptacle assembly that mates with the plug assembly, comprising:

(b<sub>1</sub>) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base and wherein the first common base and the second common base are substantially identical and interchangeable;

(b<sub>2</sub>) a receptacle contact assembly mounted within the receptacle assembly and comprising a plurality of receptacle contacts, each receptacle contact comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base; and

(b<sub>3</sub>) a receptacle cover that is coupled to the second common base and that mates with the plug cover; and

(b<sub>4</sub>) a spacer mounted between the receptacle cover and the second common base.

37. (new) A modular mezzanine connector system, comprising:

(a) a plug assembly, comprising:

(a<sub>1</sub>) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;

(a<sub>2</sub>) a plug contact assembly mounted within the plug assembly comprising a plurality of plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base; and

(a<sub>3</sub>) a plug cover coupled to the first common base; and

(b) a receptacle assembly that mates with the plug assembly, comprising:

(b<sub>1</sub>) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base and wherein the first common base and the second common base are substantially identical and interchangeable;

(b<sub>2</sub>) a receptacle contact assembly mounted within the receptacle assembly and comprising a plurality of receptacle contacts, each receptacle contact comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base; and

(b<sub>3</sub>) a receptacle cover that is coupled to the second common base and that mates with the plug cover, wherein the pockets of the first and the second common bases are disposed in an interstitial diamond configuration.

38. (new) A modular mezzanine connector system, comprising:

(a) a plug assembly, comprising:

(a<sub>1</sub>) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;

(a<sub>2</sub>) a plug contact assembly mounted within the plug assembly comprising a plurality of plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base; and

(a<sub>3</sub>) a plug cover coupled to the first common base; and

(b) a receptacle assembly that mates with the plug assembly, comprising:

(b<sub>1</sub>) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base and wherein the first common base and the second common base are substantially identical and interchangeable;

(b<sub>2</sub>) a receptacle contact assembly mounted within the receptacle assembly and comprising a plurality of receptacle contacts, each receptacle contact

comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base; and

(b<sub>3</sub>) a receptacle cover that is coupled to the second common base and that mates with the plug cover, wherein the pockets of the first and the second common bases are disposed in an interstitial diamond configuration and the first and second common bases further comprise a recess disposed above each of the pockets through which a contact can be inserted.

39. (new) A modular mezzanine connector system, comprising:

(a) a plug assembly, comprising:

(a<sub>1</sub>) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;

(a<sub>2</sub>) a plug contact assembly mounted within the plug assembly comprising a plurality of plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base; and

(a<sub>3</sub>) a plug cover coupled to the first common base; and

(b) a receptacle assembly that mates with the plug assembly, comprising:

(b<sub>1</sub>) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base and wherein the first common base and the second common base are substantially identical and interchangeable;

(b<sub>2</sub>) a receptacle contact assembly mounted within the receptacle assembly and comprising a plurality of receptacle contacts and a support member, each

receptacle contact comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base, the receptacle assembly further comprising a support member;

(b<sub>3</sub>) a receptacle cover that is coupled to the second common base and that mates with the plug cover, the receptacle cover comprising a member that runs along a midplane through the receptacle cover, the member of the receptacle cover having a groove so that the support member is inserted into the groove in order to center align the receptacle contact assembly.

40. (new) A modular mezzanine connector system, comprising:

(a) a plug assembly, comprising:

(a<sub>1</sub>) a first common base comprising a plurality of fusible elements which are each disposed within a pocket defined within the first common base;

(a<sub>2</sub>) a plug contact assembly mounted within the plug assembly comprising a plurality of plug contacts, each plug contact comprising an end which is secured to one of the fusible elements within one of the pockets of the first common base, the plug contact assembly comprising at least one row of individual contacts disposed in a ground, signal, ground pattern; and

(a<sub>3</sub>) a plug cover coupled to the first common base; and

(b) a receptacle assembly that mates with the plug assembly, comprising:

(b<sub>1</sub>) a second common base comprising a plurality of fusible elements which are each disposed within a pocket disposed within the second common base

and wherein the first common base and the second common base are substantially identical and interchangeable;

(b<sub>2</sub>) a receptacle contact assembly mounted within the receptacle assembly and comprising a plurality of receptacle contacts, each receptacle contact comprising an end which is secured to one of the fusible elements within one of the pockets of the second common base, the receptacle contact assembly comprising at least one row of individual contacts that are disposed in the ground, signal, signal, ground pattern, each adjacent two receptacle signal contacts mating with one plug signal contact beam; and

(b<sub>3</sub>) a receptacle cover that is coupled to the second common base and that mates with the plug cover.

41. (new) A method of making a modular mezzanine connector system to a desired stack height, comprising:

inserting a plurality of plug contacts into a first common base;

coupling a plug cover to the first common base and if needed to meet the desired stack height attaching a spacer between the plug base and the plug cover;

inserting a plurality of receptacle contacts into a second common base interchangeable with the first common base;

coupling a receptacle cover to the second common base;

coupling the plug cover to the receptacle cover and thereby placing the plurality of plug contacts into electrical communication with the plurality of receptacle contacts; and



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inserting a support member of the receptacle contact assembly into a groove of a member that extends along a midplane of the receptacle cover to thereby center align the receptacle contacts.